Pump plate with electric bushings

02668.01

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Fig.1: Pump plate with electric bushings 02668.01.

Operating Instructions

1 PURPOSE AND DESCRIPTION

Together with bell jar 02668.10, pump plate 02668.01 allows to carry out qualitative and quantitative demonstration experiments in the coarse and high vacuum ranges. The aluminium plate (280 mm diameter) is fitted with two pairs of bushings for 4 mm plug sockets, in order to provide electric power to parts inside the bell jar (about 250 mm diameter and 300 mm high). The 4 mm bushings can be loaded up to 4 kV. The plate has two vacuum connecting sleeves:

- an NS 19/38 sleeve polished on the inside, which allows for direct setting onto diffusion pumps with standard polished sleeve connectors,
- a DN 10 flange to connect further accessories, e. g. a vacuum gauge. Among others, a membrane pump (as an alternative to the diffusion pump) can be connected to this flange.

2 HANDLING

2.1 In general

After the requested experimental set-up has been laid out on the pump plate, bell jar 02668.10 is put over the plate. An L shaped rubber ring gasket is fastened to the plane polished edge of the glass bell jar. This seals off the bell jar from the plate without requiring the usual vacuum grease, thus allowing for particularly clean and simple experimentation.

> According to general safety regulations for science classes, it is absolutely necessary to use a protection against slivers as a precaution against a possible implosion when using large vacuum glass bell jars. For this reason, a transparent soft hood is provided together with bell jar 02668.10. This must be pulled over the bell jar. Protective cylinder 02668.14 may be used as an alternative
> It is pointed out to the fact that damages to the glass such as scratches, cracks, etc., which the person performing experiments may possibly not be aware of, may cause an implosion. During the handling of the bell jar, it is thus necessary to make sure such damages are avoided.

2.2 Vacuum generation

Several pumps are available for vacuum generation, as can be seen in the list of accessories.
The diffusion pumps are fitted with an NS 19/38 standard polished sleeve, onto which the pump plate is directly set with its own connector sleeve polished on the outside inserted into the central connector sleeve. A little vacuum grease is used for sealing off.
Membrane pumps are connected by means of a vacuum hose (d_i = 8 mm). For this, the eccentric DN 10 flange must be provided with a hose connecting sleeve 02668.12, cf. also section 2.3. In this case, the central sleeve of the pump plate, which is polished on the inside, is closed off by means of polished cone supporting rod 02668.05 (seal with vacuum grease), which also is used to set up the pump plate in a support.

2.3 DN 10 flange

Several parts or accessories can be connected simultaneously to this kind of flange, using one or two T-connections 02668.13. Vacuum tight connection is assured at every connecting point by means of a clamp ring 02668.03 and a centring and sealing ring 02668.04 which is inserted between the flanges of the connected parts. In this case, the use of vacuum grease is neither useful nor recommended.

Following accessories are available for connection to the DN 10 flange:

– T-connection DN 10 (02668.13)
  metal with three small flange connections DN 10 to connect two accessories simultaneously
– Hose nipple DN 10 (02668.12)
  metal, to connect accessories over a hose, e. g. a membrane pump
– Air inlet valve DN 10 (02668.02)
  valve is actuated by turning the union nut with hose nipple, a hose nipple also allows to let gas into the bell jar
– Blind flange DN 10 (02668.11)
  to close a not needed DN 10 flange, e. g. when two T connections are attached
– Vacuum gauge $10^2 \ldots 10^{-3}$ bar, consisting of moving coil instrument 11100.00 with range multiplier 11112.93; the Pirani gauge belonging to the range multiplier is flanged on too over a T-connection, in order to allow for simultaneous connection of the air inlet valve.

3 LIST OF ACCESSORIES

The following is a list of accessories which may be used together with pump plate 02668.01.

Air inlet valve DN 10	02668.02
Clamping ring DN 10	02668.03
Centring and sealing ring DN 10	02668.04
Supporting rod for pump plate	02668.05
Blind flange DN 10	02668.11
Hose nipple DN 10	02668.12
T-connection DN 10	02668.13
Vacuum hose, d_i = 8 mm	39288.00
Ramsay grease, 50 g	02656.00
Bell jar with knob and sealing ring	02668.10
Protection cylinder for bell jar	02668.14
For vacuum generation, either of the following may be used:	
Vacuum pump, rotating sliding vane, single step	02750.93
Vacuum pump, rotating sliding vane, two steps	02751.93
Membrane pump, single step	08163.93
Membrane pump, two steps	08166.93
For vacuum measurement:	
Moving coil instrument	11100.00
Vacuum range multiplier (with Pirani gauge)	11112.93

4 GUARANTEE

We guarantee the instrument supplied by us for a period of 24 months within the EU, or for 12 months outside of the EU. This guarantee does not cover natural wear nor damage resulting from improper handling.

The manufacturer can only be held responsible for the function and technical safety characteristics of the instrument, when maintenance, repairs and changes to the instrument are only carried out by the manufacturer or by personnel who have been explicitly authorized by him to do so.